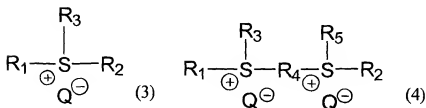
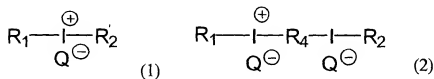


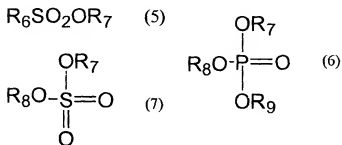
## Claims

1. A method for producing an onium salt derivative, characterized by comprising reacting an onium salt derivative represented by any one of formulas (1) through (4):



- 5 wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>5</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, an aralkyl group, or a phenacyl group, each of these groups having ≤25 carbon atoms and being optionally substituted; one or both of the pairs of R<sub>1</sub> and R<sub>3</sub>, and R<sub>2</sub> and R<sub>5</sub> may together form a divalent organic group; R<sub>4</sub> represents a C≤20 divalent organic group; and Q represents a halide anion or a C≤10 carboxylate anion,

with a compound represented by any one of formulas (5) through (7):

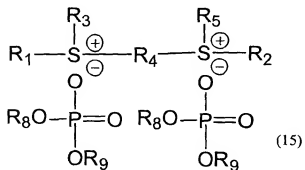
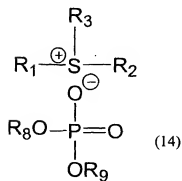
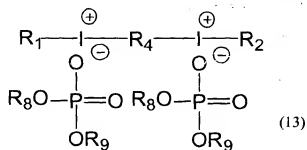
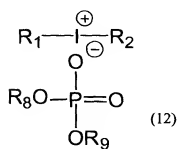
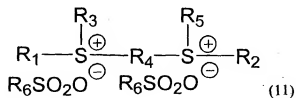
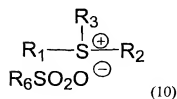
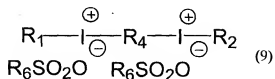
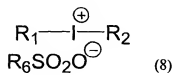


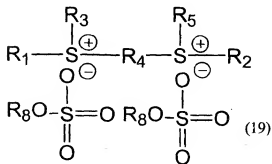
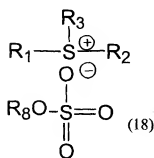
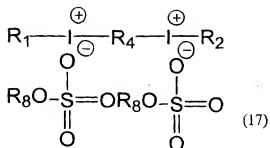
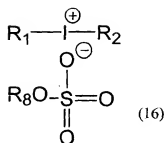
- wherein R<sub>6</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, or an aralkyl group, each of these groups having ≤25 carbon atoms and being optionally substituted; R<sub>7</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, or an aralkyl group, each of these groups having ≤10 carbon atoms and being optionally substituted; and each of R<sub>8</sub> and R<sub>9</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, or an aralkyl group, each of these groups having

≤10 carbon atoms and being optionally substituted,

to thereby yield an onium salt derivative represented by one of formulas (8) through

(19).



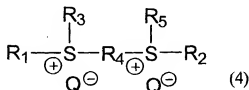
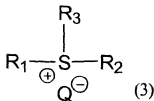
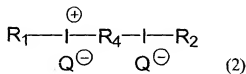
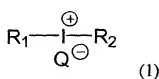


2. A method for producing an onium salt derivative according to claim 1, wherein the sulfonic acid ester represented by formula (5) is a lower alkyl sulfonate in which R<sub>7</sub> is a lower alkyl group having 5 or fewer carbon atoms.

5 3. A method for producing an onium salt derivative according to claim 1, wherein reaction is carried out while removing generated R<sub>7</sub>Q from the reaction system.

4. A method for producing an onium salt derivative according to claim 1, wherein the reaction is carried out in a solvent.

5. A method for producing an onium salt derivative, characterized by comprising  
10 reacting an onium salt derivative represented by any one of formulas (1) through (4):

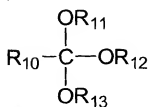


wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>5</sub> represents an alkyl group, a cycloalkyl group, a

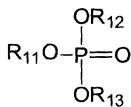
perfluoroalkyl group, an aromatic organic group, an aralkyl group, or a phenacyl group, each of these groups having  $\leq 25$  carbon atoms and being optionally substituted; one or both of the pairs of  $R_1$  and  $R_3$ , and  $R_2$  and  $R_5$  may together form a divalent organic group;  $R_4$  represents a  $C \leq 20$  divalent organic group; and  $Q$  represents a halide anion or a  $C \leq 10$

5 carboxylate anion,

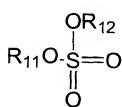
with a compound represented by any one of formulas (21) through (23):



(21)



(22)



(23)

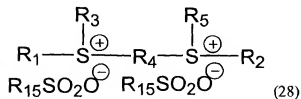
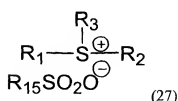
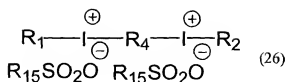
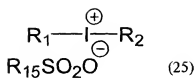
wherein  $R_{10}$  represents hydrogen or an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, or an aralkyl group, each of these groups having  $\leq 25$  carbon atoms and being optionally substituted; and each of  $R_{11}$ ,  $R_{12}$ , and  $R_{13}$  represents an  
10 alkyl group, a cycloalkyl group, a perfluoroalkyl group, or an aralkyl group, each of these groups having  $\leq 10$  carbon atoms and being optionally substituted;

and with a sulfonic acid derivative represented by formula (24):



wherein  $R_{15}$  represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, or an aralkyl group, each of these groups having  $\leq 25$  carbon atoms and being optionally substituted; and  $Y$  represents a hydrogen atom, an alkali metal, or ammonium,

to thereby yield an onium salt derivative represented by one of formulas (25)  
20 through (28).

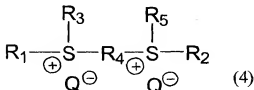
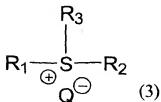
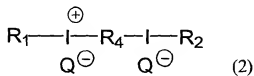
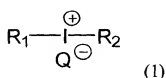


6. A method for producing an onium salt derivative according to claim 5, wherein the compound represented by any one of formulas (21) through (23) is used in an amount by mol one to ten times that of the onium salt derivative represented by any one of formulas

5 (1) through (4).

7. A method for producing an onium salt derivative according to claim 5, wherein the sulfonic acid derivative is used in an amount by mol one to two times that of the onium salt derivative represented by any one of formulas (1) through (4).

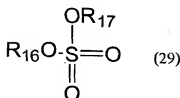
8. A method for producing an onium salt derivative, characterized by comprising  
10 reacting an onium salt derivative represented by any one of formulas (1) through (4):



wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>5</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, an aralkyl group, or a phenacyl group, each of these groups having ≤25 carbon atoms and being optionally substituted; one or both  
15 of the pairs of R<sub>1</sub> and R<sub>3</sub>, and R<sub>2</sub> and R<sub>5</sub> may together form a divalent organic group; R<sub>4</sub> represents a C≤20 divalent organic group; and Q represents a halide anion or a C≤10

carboxylate anion,

with a sulfuric acid ester represented by formula (29):



wherein each of  $\text{R}_{16}$  and  $\text{R}_{17}$  represents an alkyl group, a cycloalkyl group, a perfluoroalkyl

- 5 group, or an aralkyl group, each of these groups having  $\leq 10$  carbon atoms and being optionally substituted, to thereby form an onium salt derivative,

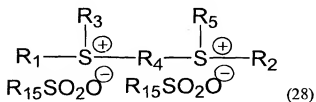
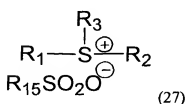
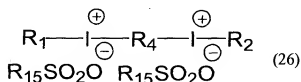
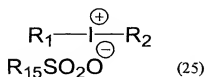
and reacting the resultant onium salt derivative with a sulfonic acid derivative represented by formula (24):



- 10 wherein  $\text{R}_{15}$  represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, or an aralkyl group, each of these groups having  $\leq 25$  carbon atoms and being optionally substituted; and Y represents a hydrogen atom, an alkali metal, or ammonium,

to thereby yield an onium salt derivative represented by one of formulas (25)

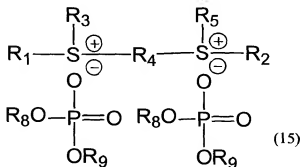
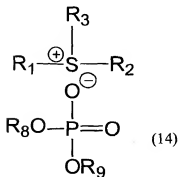
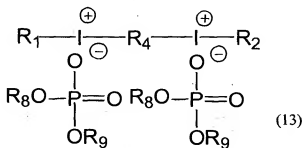
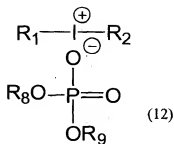
- 15 through (28).



9. A method for producing an onium salt derivative according to claim 8, wherein the sulfuric acid ester represented by formula (29) is dimethylsulfuric acid or diethylsulfuric acid.

10. A method for producing an onium salt derivative, characterized by comprising

reacting an onium salt derivative represented by any one of formulas (12) through (15):



wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>5</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, an aralkyl group, or a phenacyl group,

- 5 each of these groups having ≤25 carbon atoms and being optionally substituted; one or both of the pairs of R<sub>1</sub> and R<sub>3</sub>, and R<sub>2</sub> and R<sub>5</sub> may together form a divalent organic group; R<sub>4</sub> represents a C≤20 divalent organic group; and each of R<sub>8</sub> and R<sub>9</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, or an aralkyl group, each of these groups having ≤10 carbon atoms and being optionally substituted,

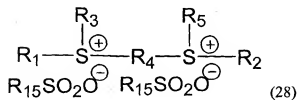
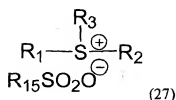
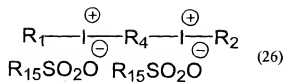
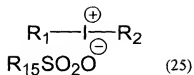
- 10 with a sulfonic acid derivative represented by formula (24):



wherein R<sub>15</sub> represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, or an aralkyl group, each of these groups having ≤25 carbon atoms and being optionally substituted; and Y represents a hydrogen atom, an alkali metal, or

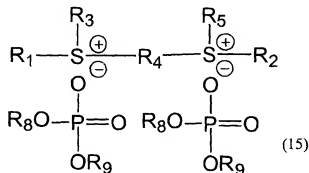
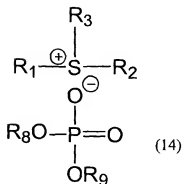
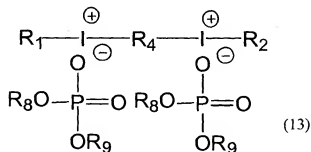
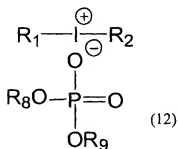
- 15 ammonium,

to thereby yield an onium salt derivative represented by one of formulas (25) through (28).



11. A novel onium compound represented by any one of formulas (12) through

(15):



- 5 wherein each of  $\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$ , and  $\text{R}_5$  represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, an aromatic organic group, an aralkyl group, or a phenacyl group, each of these groups having  $\leq 25$  carbon atoms and being optionally substituted; one or both of the pairs of  $\text{R}_1$  and  $\text{R}_3$ , and  $\text{R}_2$  and  $\text{R}_5$  may together form a divalent organic group;  $\text{R}_4$  represents a  $\text{C} \leq 20$  divalent organic group; and each of  $\text{R}_8$  and  $\text{R}_9$  represents an alkyl group, a cycloalkyl group, a perfluoroalkyl group, or an aralkyl group, each of these groups having
- 10  $\leq 10$  carbon atoms and being optionally substituted.